

U.S. National Phase of PCT/EP2003/005768

List of Current Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1 - 14 (Cancelled).

15. (New) A device for photometric measurement of the concentration of a chemical substance in a solution, comprising:

a lamp, which emits electromagnetic radiation in a predetermined wavelength range and at a given intensity value;

a first receiving unit in a measuring branch (MB), which receives the radiation transmitted through the solution at a first wavelength;

a second receiving unit in a reference branch (RB), which receives the radiation transmitted through the solution at a second wavelength; and

a control/evaluation unit connected to said first receiving unit and said second receiving unit, which uses the intensity values determined either by the measurement branch (MB) or by the reference branch (RB), in order to control the intensity of the radiation emitted by said lamp, such that the measured values made available are highly plausible.

16. (New) The device as claimed in claim 15, wherein:

said first receiving unit and said second receiving unit are UV-detectors.

17. (New) The device as claimed in claim 15, wherein:

said control/evaluation unit effects control in such a way that at least one of the two intensity values, measured in the measuring branch (MB) or in the reference branch (RB), lies within the measuring range of said respective receiving unit.

18. (New) The device as claimed in claim 15, wherein:

in the case of a high concentration of the substance in the solution, said control/evaluation unit uses the intensity value obtained in the reference branch (RB) to control the intensity of said lamp; and

in the case of a low concentration of the substance in the solution, said control/evaluation unit uses the intensity value obtained in the measuring branch (MB) to control the intensity of said lamp.

19. (New) The device as claimed in claim 17, wherein:

said control/evaluation unit checks whether one of the two intensity values - that is, the intensity value measured in the reference branch (RB) or that in the measuring branch (MB) - is at least as great as a predetermined maximum intensity value (I_{max_1}).

20. (New) The device as claimed in claim 18, wherein:

said control/evaluation unit checks whether the intensity value measured in the reference branch (RB) is greater than the predetermined maximum intensity value (I_{max_1}); and

in the case that the intensity value measured in the reference branch (RB) is greater than the predetermined maximum intensity value (I_{max_1}), said control/evaluation unit reduces the intensity of said lamp successively in predetermined steps, until the intensity value measured in the reference branch (RB) is smaller than the predetermined maximum intensity value (I_{max_1}).

21. (New) The device as claimed in claim 19, wherein:

in the case that neither the intensity value measured in the reference branch (RB) nor that in the measuring branch (MB) is at least as great as the predetermined maximum intensity value (I_{max_1}), said control/evaluation unit increases the intensity of said lamp, said control/evaluation unit subsequently checks whether the intensity value measured in the reference branch (RB) is greater than the predetermined maximum intensity value (I_{max_1}); and

in the case that the intensity value measured in the reference branch (RB) is greater than the predetermined maximum intensity value (I_{\max_1}), said control/evaluation unit reduces the intensity of said lamp successively in predetermined steps, until the intensity value measured in the reference branch (RB) is smaller than the predetermined maximum intensity value (I_{\max_1}).

22. (New) The device as claimed in claim 15, wherein:
said lamp is a flash lamp, preferably a xenon flash lamp.

23. (New) The device as claimed in claim 22, further comprising:
a first capacitor by way of which said control/evaluation unit controls the intensity of said lamp.

24. (New) The device as claimed in claim 23, further comprising:
a second capacitor which said control/evaluation unit adds to said first capacitor in order to increase the intensity of said lamp.

25. (New) The device as claimed in claim 15, wherein:
control of the intensity of said lamp can be deactivated; and
said control/evaluation unit furnishes a measured value for the concentration of the substance in the solution, on the basis of the intensity values measured in the measuring branch (MB) and the reference branch (RB).

26. (New) The device as claimed in claim 15, wherein:
said control/evaluation unit subjects an obtained measured value to a plausibility check, in which the intensity values obtained in the measurement branch (MB) and the reference branch (RB) are checked for predetermined conditions; and
said control/evaluation unit assigns to an obtained measured value a disturbance variable found in the course of the plausibility check.

27. (New) The device as claimed in claim 26, further comprising:
a display, wherein:

said control/evaluation unit presents the measured value and the possibly
present disturbance variable on said display.

28. (New) The device as claimed in claim 25, wherein:

said control/evaluation unit statistically determines a measured value based on
a plurality of individual, measured values.